

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

| | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|------|
| TCDS NUMBER 1E4 REVISION: 18 | | | | | | | |
| TEXTRON LYCOMING | | | | | | | |
| <u>MODELS: IO-540-</u> | | | | | | | |
| A1A5 | B1A5 | B1B5 | B1C5 | C1B5 | C1C5 | C2C | |
| C4B5 | C4B5D | C4D5 | C4C5 | C4D5D | D4A5 | D4B5 | D4C5 |
| E1A5 | E1B5 | E1C5 | G1A5 | G1B5 | G1C5 | G1D5 | |
| G1E5 | G1F5 | J4A5 | K1A5 | K1A5D | K1B5 | K1B5D | |
| K1C5 | K1D5 | K1E5 | K1E5D | K1F5 | K1F5D | K1G5 | |
| K1G5D | K1H5 | K1J5 | K1J5D | K1K5 | K2A5 | L1A5 | |
| L1A5D | L1B5D | L1C5 | M1A5 | M1A5D | M1B5D | M1C5 | |
| M2A5D | N1A5 | P1A5 | R1A5 | S1A5 | T4A5D | T4B5 | |
| T4B5D | T4C5D | U1A5D | U1B5D | V4A5D | V4A5 | W1A5 | |
| W1A5D | W3A5D | AA1A5 | AA1B5 | AB1A5 | AC1A5 | | |
| <u>MODEL HIO-540-A1A</u> | | | | | | | |
| <u>MODEL AEIO-540</u> D4A5 D4B5 D4C5 D4D5 L1B5D L1B5 | | | | | | | |
| L1D5 | | | | | | | |
| August 15, 2001 | | | | | | | |

TYPE CERTIFICATE DATA SHEET NO. 1E4

Engines of models described herein conforming with this data sheet (which is a part of Type Certificate No. 1E4) and other approved data on file with the Federal Aviation Administration meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations/Federal Aviation Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate (T.C.) Holder:

Textron Lycoming
AVCO Corporation
652 Oliver St.
Williamsport, Pennsylvania 17701

| | | | | | | | | | | | | |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|
| Page No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Rev No. | 18 | 16 | 18 | 17 | 16 | 18 | 18 | 17 | 16 | 18 | 16 | 18 |

| I. Models: IO-540 | A1A5, -B1A5, -B1B5, B1C5, -E1A5, -E1B5, -E1C5, G1A5, -G1B5, -G1C5, -G1D5, G1E5, -G1F5, -P1A5, HIO-540-A1A | -C1B5, -C1C5, -C2C, -C4B5, -C4C5, -J4A5, -C4D5D -C4D5 -C4B5D | -W1A5D, -W3A5D -W1A5 | +AA1A5 -AA1B5 |
|--|--|---|----------------------------|---------------------------------|
| Type | 6HOA DIRECT DRIVE | -- | -- | -- |
| Rating Takeoff and maximum continuous hp., rpm, full throttle at: Sea level pressure altitude +Alternate Rating 250-2425-S.L. | 290-2575 | 250-2575 | 235-2400 | 270-2700 SEE NOTE 8 |
| Fuel (Minimum grade aviation gasoline) | 100/100LL* | -- | -- | -- |
| Injection | SEE NOTE 5 | -- | -- | -- |
| Pump drive | SEE NOTE 3 | -- | -- | -- |
| Oil Lubrication (Lubricants should conform to the specifications as listed or to subsequent revisions thereto.) | Lycoming Specification No. 301-E and Service Instruction No. 1014 | -- | | |
| Oil sump capacity, qt. | 12 | -- | 8 | 12 |
| Usable oil qt., Normal operation | 9.25 | -- | 6.0 | 9.25 |
| 20° nose up or down (except AEIO)) | 9.25 | -- | 6.0 | 9.25 |
| 30° nose up or down (except AEIO) | 8.0 | -- | 6.0 | 8.0 |
| 30° nose up (AEIO only) | # | # | # | # |
| 18° nose down (AEIO only) | # | # | # | # |
| Inverted flight (AEIO only) | # | # | # | # |
| Ignition, dual | # | # | # | # |
| Magnetos | SEE NOTE 9 | -- | -- | -- |
| Timing °BTC | 20 | 25 | 23 | 20 |
| Spark plugs | SEE NOTE 4 | -- | -- | -- |
| Compression | | | | |
| Bore and stroke, in. | 5.125 X 4.375 | -- | -- | -- |
| Displacement, cu. in. | 541.5 | -- | -- | -- |
| Compression ratio | 8.7:1 | 8.5:1 | 8.5:1 | 7.3:1 |
| Turbo-supercharger | # | SEE NOTE 8 | # | SEE NOTE 8 |
| Weight (dry), lb. | SEE NOTE 5 | -- | -- | -- |
| C.G. location | SEE NOTE 9 | -- | -- | -- |
| Propeller shaft – Specification A.S. 127 | Type 2 Flange Modified | -- | -- | -- |
| Crankshaft dampers (torsional) | SEE NOTE 7 | -- | -- | -- |
| NOTES | 1,2,3,4,5,6,7 | 1,2,3,4,5,6,7 | 1,2,3,4,5,6,7 | 1,2,3,4,5, 6,7,8,9,10, 11 |

"- -" indicates "same as preceding"

"#" indicates "does not apply"

*See latest revision of Lycoming Service Instruction No. 1070 for alternate fuel grades

| | | | | |
|--|--|--|--|--|
| II. MODELS: IO-540- | -K1A5, -K1A5D, +-K1B5, -K2A5, -K1B5D, +-K1C5, +-K1D5, -K1E5, -K1E5D, +-K1F5, -K1F5D, -K1G5, -K1G5D, -K1H5, +-K1J5, +-K1J5D, -K1K5, -L1A5, -L1A5D, -L1B5D, -L1C5, -M1A5, -M1A5D, -M1B5D, -M1C5, -M2A5D, -S1A5, -U1A5D, -U1B5D | AEIO-540-L1B5D, AEIO-540-L1B5, AEIO-540-L1D5 | IO-540 -D4A5, -D4B5, -D4C5, -N1A5, -R1A5, -D4A5 AEIO-540- -D4A5, -D4B5, -D4C5 -D4D5 | IO-540- -T4A5D, -T4B5, -T4B5D, -T4C5D, -V4A5D |
| Type Rating Takeoff and maximum continuous hp., rpm, full throttle at: sea level pressure altitude + Alternate Rating 290 - 2575 - S.L. | 6HOA DIRECT DRIVE 300-2700 | -- 300-2700 | -- 260-2700 | -- 260-2700 |
| Fuel (minimum grade aviation gasoline) | 100/100LL* | -- | -- | -- |
| Injection | See NOTE 5 | -- | -- | -- |
| Pump drive | See NOTE 3 | -- | -- | -- |
| Oil, lubrication (Lubricants should conform to the specifications as listed or to subsequent revisions thereto.) | Lycoming Specification No. 301-E and Service Instruction No. 1014. | | | |
| Oil sump capacity, qt. | 12 | 16 | 12 | 8 |
| Usable oil qt., Normal operation | 9.25 | 8.0 | 9.25 | 6.0 |
| 20° nose up or down (except AEIO) | 9.25 | # | 9.25 | 6.0 |
| 30° nose up or down (except AEIO) | 8.0 | # | 8.0 | 6.0 |
| 30° nose up (AEIO only) | # | 8.0 (37° up, 20° down) | | |
| 18° nose down (AEIO only) | # | 7.0 (25° down) | 6.0 | # |
| Inverted flight (AEIO only) | # | 8.0 | 6.0 | |
| Ignition, dual | | | | |
| Magnetos | SEE NOTE 9 | -- | -- | -- |
| Timing, °BTC | 20 | -- | 25 | -- |
| Spark Plugs | SEE NOTE 4 | -- | -- | -- |
| Compression | | | | |
| Bore and stroke, in. | 5.125 X 4.375 | -- | -- | -- |
| Displacement, cu. in. | 541.5 | -- | -- | -- |
| Compression ratio | 8.7:1 | -- | 8.5:1 | # |
| Turbo-supercharger | # | # | SEE NOTE 8 | # |
| Weight (dry), lb. | SEE NOTE 5 | | | |
| C.G. location | SEE NOTE 9 | -- | -- | -- |
| Propeller shaft – Specification A.S. 127 | Type 2 Flange Modified | -- | -- | -- |
| Crankshaft dampers (torsional) | See NOTE 7 | -- | -- | -- |
| NOTES | 1,2,3,4,5,6,7,9,10,11 | -- | 1,2,3,4,5, 6,7,8,9,10, 11 | 1,2,3,4,5, 6,7,8,9, 10,11 |

"- " indicates "same as preceding"

"#" indicates "does not apply"

*See latest revision of Lycoming Service Instruction No. 1070 for alternate fuel grades

| I. Models: IO-540 | AB1A5 | -AC1A5 |
|--|---|------------|
| Type | 6HOA DIRECT DRIVE | -- |
| Rating Takeoff and maximum continuous hp., rpm, full throttle at: Sea level pressure altitude | 230-2400 | 300 – 2700 |
| Fuel (Minimum grade aviation gasoline) | 100/100LL* | -- |
| Injection | SEE NOTE 5 | -- |
| Pump drive | SEE NOTE 3 | -- |
| Oil Lubrication (Lubricants should conform to the specifications as listed or to subsequent revisions thereto.) | Lycoming Specification No. 301-E and Service Instruction No. 1014 | -- |
| Oil sump capacity, qt. | 8 | 11 |
| Usable oil qt., Normal operation | 6.0 | 5 ½ |
| 20° nose up or down (except AEIO)) | 6.0 | 5 ½ |
| 30° nose up or down (except AEIO) | 6.0 | 5 ½ |
| 30° nose up (AEIO only) | # | -- |
| 18° nose down (AEIO only) | # | -- |
| Inverted flight (AEIO only) | # | -- |
| Ignition, dual | # | -- |
| Magnetos | SEE NOTE 9 | -- |
| Timing °BTC | 23 | 20 |
| Spark plugs | SEE NOTE 4 | -- |
| Compression | | |
| Bore and stroke, in. | 5.125 X 4.375 | -- |
| Displacement, cu. in. | 541.5 | -- |
| Compression ratio | 8.5:1 | 8.7:1 |
| Turbo-supercharger | # | -- |
| Weight (dry), lb. | SEE NOTE 5 | -- |
| C.G. location | SEE NOTE 9 | -- |
| Propeller shaft – Specification A.S. 127 | Type 2 Flange Modified | -- |
| Crankshaft dampers (torsional) | SEE NOTE 7 | -- |
| NOTES | 1,2,3,4,5,6,7 | -- |

"- -" indicates "same as preceding"

"#" indicates "does not apply"

*See latest revision of Lycoming Service Instruction No. 1070 for alternate fuel grades

Certification basis:

| Regulations & Amendments | Model | Date of Application | Date Type Certificate No. 1E4 Issued/Revised |
|--|-------------------|---------------------|---|
| CAR 13 effective June 15, 1956 As Amended by 13-1, 13-2, 13-3 | IO-540-B1A5 | January 7, 1960 | May 5, 1960 |
| | IO-540-B1B5 | June 1, 1960 | June 9, 1960 |
| | IO-540-A1A5 | April 6, 1961 | June 30, 1961 |
| | IO-540-C1B5 | July 6, 1961 | January 2, 1962 |
| | IO-540-E1A5 | April 6, 1962 | June 15, 1962 |
| | IO-540-B1C5 | April 18, 1963 | May 20, 1963 |
| | IO-540-C1A5 | August 9, 1963 | August 21, 1963 |
| | IO-540-C4B5 | October 3, 1963 | October 9, 1963 |
| | IO-540-C1C5 | December 2, 1963 | December 31, 1963 |
| | IO-540-C2C | December 17, 1963 | December 31, 1963 |
| Cancelled - | IO-540-C1A5 ----- | -----Cancelled - | March 6, 1964 |
| | IO-540-D4A5 | April 1, 1964 | May 4, 1964 |
| | IO-540-J4A5 | December 23, 1964 | May 7, 1965 |
| | IO-540-K1A5 | August 10, 1965 | February 9, 1966 |
| | IO-540-E1B5 | March 11, 1966 | March 29, 1966 |
| | IO-540-G1B5 | May 16, 1966 | July 8, 1966 |
| | IO-540-K1B5 | July 8, 1966 | July 22, 1966 |
| | IO-540-M1A5 | August 18, 1966 | January 27, 1967 |
| | IO-540-C4C5 | August 31, 1966 | September 2, 1966 |
| | IO-540-G1C5 | September 21, 1966 | October 14, 1966 |
| | IO-540-L1A5 | November 2, 1966 | May 23, 1967 |
| | IO-540-G1D5 | December 20, 1966 | January 27, 1967 |
| | IO-540-G1E5 | May 16, 1967 | May 26, 1967 |
| | IO-540-E1C5 | March 8, 1968 | March 14, 1968 |
| | IO-540-N1A5 | November 19, 1968 | December 5, 1968 |
| | IO-540-P1A5 | December 4, 1968 | December 9, 1968 |
| | IO-540-K1C5 | March 24, 1969 | March 25, 1969 |
| | IO-540-K1D5 | August 29, 1969 | September 4, 1969 |
| | IO-540-R1A5 | September 29, 1969 | October 6, 1969 |
| | IO-540-G1F5 | March 5, 1970 | March 11, 1970 |
| | IO-540-K1E5 | November 24, 1970 | December 7, 1970 |
| | IO-540-K1E5D | October 12, 1972 | October 21, 1972 |
| | IO-540-M2A5D | January 4, 1973 | January 16, 1973 |
| | IO-540-D4B5 | March 13, 1973 | March 20, 1973 |
| | IO-540-K1F5 | May 16, 1973 | May 25, 1973 |
| | IO-540-S1A5 | May 16, 1973 | May 25, 1973 |
| | IO-540-K1F5D | May 17, 1973 | May 30, 1973 |
| | HIO-540-A1A | June 18, 1973 | March 5, 1974 |
| | IO-540-K1A5D | May 1, 1974 | June 3, 1974 |
| | IO-540-K1B5D | May 1, 1974 | June 3, 1974 |
| | IO-540-D4C5 | October 30, 1974 | November 8, 1974 |
| | AEIO-540-D4A5 | November 12, 1974 | November 26, 1974 |
| | AEIO-540-D4B5 | November 12, 1974 | November 26, 1974 |
| | AEIO-540-D4C5 | November 12, 1974 | November 26, 1974 |
| | IO-540-T4A5D | April 17, 1975 | April 28, 1975 |
| | IO-540-U1A5D | June 2, 1975 | June 12, 1975 |
| | IO-540-K1G5 | September 10, 1975 | September 24, 1975 |
| | IO-540-K1G5D | September 10, 1975 | September 24, 1975 |
| | IO-540-U1B5D | September 30, 1975 | October 23, 1975 |
| | IO-540-K1H5 | November 12, 1975 | December 10, 1975 |
| | IO-540-K1J5 | November 12, 1975 | December 10, 1975 |
| | IO-540-K1J5D | November 12, 1975 | December 10, 1975 |
| | IO-540-T4B5D | September 20, 1976 | September 23, 1976 |
| | IO-540-V4A5D | July 11, 1978 | July 21, 1978 |
| | IO-540-L1A5D | September 28, 1978 | October 6, 1978 |
| | IO-540-M1A5D | January 22, 1979 | January 26, 1979 |
| | IO-540-M1B5D | November 15, 1979 | November 29, 1979 |
| | IO-540-C4D5D | March 4, 1980 | March 13, 1980 |

Certification Basis (cont'd)

| Regulations & Amendments | Model | Date of Application | Date Type Certificate No. 1E4 Issued Revised |
|--------------------------------|----------------|---------------------|---|
| CAR 13 effective June 15, 1956 | IO-540-W1A5D | May 6, 1980 | June 2, 1980 |
| As Amended by 13-1, 13-2, 13-3 | IO-540-AA1A5 | September 10, 1980 | October 30, 1980 |
| | AEIO-540-L1B5D | December 16, 1980 | February 27, 1981 |
| | IO-540-K1K5 | June 9, 1981 | June 23, 1981 |
| | IO-540-W3A5B | March 11, 1985 | June 6, 1985 |
| | IO-540-L1C5 | May 7, 1985 | June 17, 1985 |
| | IO-540-T4C5D | January 12, 1987 | January 20, 1987 |
| | AEIO-540-L1B5 | June 1, 1989 | June 22, 1989 |
| | IO-540-L1B5D | February 12, 1987 | February 20, 1987 |
| | IO-540-T4B5 | October 29, 1989 | November 3, 1989 |
| | IO-540-K2A5 | February 19, 1990 | March 29, 1990 |
| | IO-540-C4D5 | May 15, 1990 | June 20, 1990 |
| | IO-540-AA1B5 | February 19, 1992 | February 28, 1992 |
| | IO-540-W1A5 | June 29, 1992 | August 12, 1992 |
| | IO-540-M1C5 | December 11, 1992 | December 18, 1992 |
| | IO-540-C4B5D | December 23, 1992 | February 26, 1993 |
| | IO-540-V4A5 | October 25, 1995 | June 18, 1996 |
| | IO-540-AB1A5 | April 15, 1996 | June 18, 1996 |
| | AEIO-540-D4D5 | July 9, 1996 | July 24, 1996 |
| | IO-540-AC1A5 | April 3, 1998 | May 27, 1998 |
| | AEIO-540-L1D5 | April 24, 2001 | August 1, 2001 |

Production basis: Production Certificate No. 3

NOTE 1. Temperature Limits (Maximum permissible):

| | | |
|--|------------|--|
| Cylinder head (well type thermocouple) | 500°F | |
| Cylinder base | | 325°F Cylinder base temperature limits are not applicable to engine models which incorporate internal piston cooling oil jets. |
| Oil inlet | 245°F | |
| Air inlet to injector | See NOTE 8 | |

NOTE 2. Pressure Limits:

p.s.i. at inlet to fuel pump
Maximum Minimum

Fuel:

IO-540-C1B5-C1C5,-C2C,-C4B5,-C4B5D-C4C5,-C4D5,-D4A5,D4B5,-D4C5,
-N1A5,-T4A5D,-T4B5,-T4B5D; AEIO-540-D4A5,-D4B5,-D4C5,-D4D5;
IO-540-L1C5,-C4D5D,-T4C5D,-V4A5D,-V4A5,-W1A5D,-W1A5,-W3A5D,-AB1A5,
-AC1A5

35 -2

IO-540-J4A5,-M2A5D,-R1A5,-M1A5D,-M1B5D,

45 -2

IO-540-L1A5

55 -2

IO-540-E1C5,-G1B5,-G1C5,-G1D5,-K1A5,-K1A5D,-K1B5,-K1B5D,
-K1D5,-K1F5,-K1F5D,-K1G5,-K1G5D,-K1H5,-K1J5,-K1J5D,-K1K5,
-K2A5,-L1A5,-L1A5D,-L1B5D,-M1A5, -M1C5,-P1A5,-S1A5,-U1A5D,
-U1B5D-AA1A5, HI0-540-A1A; AEIO-540-L1B5D,-L1B5, L1D5

40 -2

| | p.s.i. at inlet to fuel injector | | | Max. Injector in Idle cutoff |
|---|----------------------------------|---------|--------------|---------------------------------|
| | Maximum | Minimum | Minimum Idle | |
| IO-540-A1A5,-B1A5,-B1C5,-E1A5,-E1B5,-G1A5,-G1E5,-G1F5, -K1C5,-K1E5,-K1E5D | 26 | 20 | # | # |
| IO-540-B1B5 | 5 | 2 | # | # |
| IO-540-AB1A5,-C1B5,-C1C5,-C2C,-C4B5,-C4C5,-C4D5,-C4D5D, -D4A5,-D4B5,-D4C5,-J4A5,-N1A5,-R1A5,-T4A5D,-T4B5,-T4B5D, -T4C5D,-V4A5D,-V4A5,-V1A5,-W1A5D,-W3A5D; AEIO-540-D4A5,-D4B5,-D4C5,-D4D5 | 45 | 14 | 12 | 55 |
| IO-540-E1C5,-G1B5,-G1C5,-G1D5,-K1A5,-K2A5,-K1A5D,-K1B5, -K1B5D,-K1D5,-K1F5,-K1F5D,-K1G5,-K1G5D,-K1H5,-K1J5,-K1J5D, -L1A5,-P1A5,-S1A5,-U1A5D,-U1A5D,-U1B5D; AA1A5,-AA1B5,-AC1A5,- L1A5D,-L1B5D,-K1K5,-M1A5; AEIO-540-L1B5D,-L1B5,L1D5; HIO-540-A1A | 40 | 18 | 12 | 55 |
| IO-540-M1A5,-M2A5D,-M1A5D,-M1B5D | 45 | 18 | 12 | 55 |
| IO-540-L1A5,-L1C5 | 55 | 18 | 12 | 55 |

| | | |
|--------------------------------------|----------------|----------------|
| Oil: | <u>Maximum</u> | <u>Minimum</u> |
| Normal operation | 95 p.s.i. | 55 p.s.i. |
| Idling | # | 25 p.s.i. |
| Starting, warm-up, Taxi and Take off | 115 p.s.i. | # |

"#" indicates does not apply

NOTE 3. Accessory Drive Provisions: For additional information on engine drives, refer to Textron Lycoming Operator's Manual.

| | Rotation Facing Drive | Speed Ratio to Crankshaft | Maximum Torque (in.-lb.) | | Maximum Overhung Moment (in.-lb.) |
|----------------|--------------------------|------------------------------|-----------------------------|--------|--|
| | | | Continuous | Static | |
| Accessory | pad | | | | |
| Starter | CC | 16.556:1 | # | 450 | 150 |
| Generator | C | 1.910:1 | 60 | 120 | 175 |
| Generator | C | 2.500:1 | 60 | 120 | 175 |
| Alternator | C | 3.200:1 | 60 | 120 | 175 |
| Alternator | C | 3.630:1 | 60 | 110 | 175 |
| Vacuum pump | CC | 1.300:1 | 70 | 450 | 25 |
| Hydraulic pump | C | 1.385:1 | 100 | 800 | 40 |
| Hydraulic pump | C | 0.480:1 | 100 | 800 | 40 |
| Hydraulic pump | C | 1.300:1 | 100 | 800 | 40 |
| Hydraulic pump | C | 1.300:1 | 180 | 2200 | 150 |
| Tachometer | C | 0.500:1 | 7 | 50 | 5 |
| Prop governor | C | 0.895:1 | 125 | 1200 | 25 |
| Prop governor | C | 0.947:1 | 125 | 2200 | 25 |
| Fuel pump | Plunger | 0.500:1 | # | # | 10 |
| Fuel pump | CC | 1.000:1 | 25 | 450 | 25 |
| Fuel pump | C | 1.000:1 | 25 | 450 | 25 |

"#" indicates: Does not apply.

"C" Clockwise, "CC" Counter-Clockwise

Fuel pump drive pad used for fuel injector drive on Model IO-540-B1B5

"Narrow deck" engines have a propeller governor drive ratio of 0.895:1 and "wide deck" engines have a 0.947:1 ratio.

NOTE 4. Spark Plugs: See latest revision of Lycoming Service Instruction no. 1042 for approved equipment

NOTE 5. Model similarities and differences:

| | <u>Models</u> | <u>Weight (dry) lb.</u> | <u>Fuel Injection *</u> | <u>Characteristics</u> |
|--------|---------------|-----------------------------|-------------------------|---|
| IO-540 | -A1A5 | 414 | PAC RS-10ED1 | Basic model - 6 cylinder, - horizontally opposed aircooled direct drive, with fuel injection, tuned induction, downdraft cooling and bottom side exhaust ports. |
| | -AA1A5 | 479 | PAC RSA-10ED1 | Same as -S1A5 except has low compression (7.3:1) ratio pistons. |
| | -AA1B5 | 479 | PAC RSA-10ED1 | Same as -AA1A5 except uses a Slick pressurized impulse magneto instead of a retard magneto. |
| | -AB1A5 | 382 | PAC RSA-5AD1 | Similar to IO-540-W1A5 Except has more effective counterweights , two Slick impulse magnetos and the fuel injector is located on the bottom of the sump |
| | -AC1A5 | 454 | PCA RSA-10ED1 | Similar to IO-540-K1C5 except top intake down exhaust |
| | -B1A5 | 411 | PAC RS-10B1 | Same as -A1A5 except has updraft cooling air and top side exhaust ports. |
| | -B1B6 | 406 | Simmonds 530 | Same as -B1A5 except has a Simmonds fuel injector. |
| | -B1C5 | 411 | PAC RS-10B1 | Same as -B1A5 except servo-bleed removed from PAC injector servo vent. |
| | -C1B5 | 375 | PAC RSA-5AD1 | Differs from A & B series in that it has parallel valve cylinders, untuned induction system, an RSA-5AD1 PAC fuel injector mounted on the bottom of the sump and a diaphragm fuel pump. |
| | -C1C5 | 373 | PAC RSA-5AD1 | Similar to -C1B5 except accessory housing converted with an AN fuel pump drive to provide for turbocharging. |
| | -C2C | 373 | PAC RSA-5AD1 | Similar to -C1B5 except has two 6th order dampers and S6LN-21, S6LN-20 TCM magnetos and an AN fuel pump drive. |
| | -C4B5 | 404 | PAC RSA-5AD1 | Similar to -C1B5 except incorporates heavier crankshaft counterweights, eligible for use with Hartzell compact propeller. |
| | -C4D5 | 402 | PAC RSA-5AD1 | Similar to -C4B5 except uses an impulse magneto in place of the retard breaker magneto. |
| | -C4D5D | 410 | PAC RSA-5AD1 | Similar to -C4B5 except has a TCM D6LN-2031 impulse coupling dual magneto. |
| | -C4C5 | 373 | PAC RSA-5AD1 | Same as -C1C5 except incorporates heavier crankshaft counterweights, eligible for use with Hartzell compact propeller. |
| | -C4B5D | 410 | PAC RSA-5AD1 | Similar to C4D5D except has retard breaker magneto instead of an impulse magneto. |
| | -D4A5 | 379 | PAC RSA-5AD1 | Similar to -C4B5 except for hybrid camshaft. |
| | -D4B5 | 381 | PAC RSA-5AD1 | Same as -D4A5 except has TCM S1200 series magnetos with impulse coupling instead of S-200 series with retard breaker. |
| | -D4C5 | 380 | PAC RSA-5AD1 | Same as -D4B5 except has a S6LN-1208 magneto instead of S6LN-1277 magneto. |
| | -E1A5 | 411 | PAC RS-10B1 | Same as -B1A5 except has internal piston cooling oil jets, thereby increasing maximum heat rejected to oil to 1150 BTU per minute. |
| | -E1B5 | 412 | PAC RS-10B1 | Same as -E1A5 except has TCM S6LN-1208 and -1209 magnetos. |
| | -E1C5 | 416 | PAC RSA-10ED1 | Same as -E1B5 except for fuel injector. |
| | -G1A5 | 416 | PAC RS-10ED1 | Similar to -A1A5 except has internal piston cooling oil jets thereby increasing maximum heat rejected to oil to 1150 BTU per minute. |
| | -G1B5 | 419 | PAC RSA-10ED1 | Similar to -G1A5 except incorporates TCM 1200 series magnetos and different fuel control. |
| | -G1C5 | 420 | PAC RSA-10ED1 | Similar to -G1B5 and -G1D5 but has a 38 1/2° angle fuel injector adapter. |
| | -G1D5 | 420 | PAC RSA-10ED1 | Similar to -G1B5 except TCM S6LN-1227 impulse coupling magneto on left side. |

* Precision Airmotive Corp. (PAC) formally Bendix

NOTE 5. Model similarities and differences: (cont'd)

| | <u>Models</u> | <u>Weight (dry) lb.</u> | <u>Fuel Injection *</u> | <u>Characteristics</u> |
|--------|---------------|-----------------------------|-------------------------|---|
| IO-540 | -G1E5 | 417 | PAC RS-10ED1 | Same as -G1A5 except incorporates TCM 1200 series high altitude magnetos. |
| | -G1F5 | 418 | PAC RS-10ED1 | Same as -G1E5 except has different magneto models. |
| | -J4A5 | 380 | PAC RSA-5AD1 | Differs from -C4B6 by particulars adapting it for possible turbocharger. |
| | -K1A5 | 443 | PAC RSA-10ED1 | Similar to -G1A5 except has TCM S6LN-1209 and 1227 magnetos, a PAC RSA-10ED1 fuel injector mounted 38 1/2° left of rear and a stiffer crankshaft. |
| | -K1A5D | 439 | PAC RSA-10ED1 | Same as -K1A5 except equipped with a D6LN-2031 dual magneto. |
| | -K1B5 | 443 | PAC RSA-10ED1 | Similar to -K1A5 except incorporates two TCM S6LN-1227 impulse coupling magnetos and a 10 1/3° left or right air inlet housing. |
| | -K1B5D | 439 | PAC RSA-10ED1 | Same as -K1B5 except equipped with a D6LN-2031 dual magneto. |
| | -K1C5 | 438 | PAC RS-10ED1 | Similar to the -K1A5 has different magnetos, different fuel injector and a straight air inlet adapter. |
| | -K1D5 | 442 | PAC RSA-10ED1 | Similar to -K1B5 except has different magnetos and a flange fuel injector inlet coupling. |
| | -K1E5 | 439 | PAC RS-10ED1 | Same as -K1B5 except has different fuel injector. |
| | -K1E5D | 435 | PAC RS-10ED1 | Same as -K1E5 except has TCM D-2000 series, impulse coupling dual magneto. |
| | -K1F5 | 442 | PAC RSA-10ED1 | Same as -G1B5 but with IO-540-K series rotating system. |
| | -K1F5D | 438 | PAC RS-10ED1 | Same as -K1F5 but with TCM D-2000 series, retard breaker dual magneto. |
| | -K1G5 | 442 | PAC RSA-10ED1 | Same as -K1A5 except equipped with a diaphragm type fuel pump and drive. |
| | -K1G5D | 438 | PAC RSA-10ED1 | Same as -K1A5D except equipped with a diaphragm type fuel pump and drive. |
| | -K1H5 | 442 | PAC RSA-10ED1 | Same as -K1B5 except equipped with a diaphragm type fuel pump and drive. |
| | -K1J5 | 441 | PAC RSA-10ED1 | Same as -K1F5 except equipped with a diaphragm type fuel pump and drive. |
| | -K1J5D | 437 | PAC RSA-10ED1 | Same as -K1F5D except equipped with a diaphragm type fuel pump and drive. |
| | -K1K5 | 469 | PAC RSA-10ED1 | Same as -K1A5 except has high crush main bearings and crankcase rear oil drain holes. |
| | -K2A5 | 469 | PAC RSA-10ED1 | Similar to -K1A5 except incorporates different propeller flange bushings. |
| | -L1A5 | 472 | PAC RSA-10AD1 | Same as -K1A5 except for induction system housing and fuel injector mounted to the front. |
| | -L2A5D | 468 | PAC RSA-10AD1 | Same as -L1A5 except has a TCM D6LN-2031 impulse coupling dual magneto. |
| | -L1B5D | 471 | PAC RSA-10AD1 | Same as AEIO-540-L1B5D except not equipped with aerobatic components |
| | -L1C5 | 471 | PAC RSA-10AD1 | Same as -L1A5 except equipped with a diaphragm type fuel pump. |
| | -M1A5 | 436 | PAC RSA-10AD1 | Similar to -K1B6 except has up exhaust, different PAC injector, different length ignition harness and ni-resist exhaust valve guides. |
| | -M1A5D | 466 | PAC RSA-10AD1 | Same as -M2A5D except has provisions for a controllable propeller. |
| | -M1B5D | 467 | PAC RSA-10EA1 | Similar to -M1A5D except has impulse magneto, straight inlet fuel injector adapter and a diaphragm type fuel pump. |
| | -M1C5 | 436 | PAC RSA-10AD1 | Similar to -M1A5 except has impulse magneto instead of a retard magneto. |
| | -M2A5D | 432 | PAC RSA-10AD1 | Same as -M1A5 except has TCM D-2000 series magneto instead of S-1200 series magnetos. |

NOTE 5. Model similarities and differences: (cont'd)

| | <u>Models</u> | <u>Weight (dry) lb.</u> | <u>Fuel Injection *</u> | <u>Characteristics</u> |
|--------|---------------|-----------------------------|-----------------------------------|---|
| IO-540 | -N1A5 | 397 | PAC RSA-5AD1 | Similar to the -D4A5 except has a stiffer crankshaft and heavier 5th and 6th order dampers thereby being eligible for use with an extended hub propeller. |
| | -P1A5 | 424 | PAC RSA-10ED1 | Similar to the -G1B5 except incorporates a larger engine oil pump and suitable for turbocharging. |
| | -R1A5 | 406 | PAC RSA-5AD1 | Similar to -N1A5 except has different magnetos and is suitable for turbocharging. Incorporates piston cooling oil jets. |
| | -S1A5 | 444 | PAC RSA-10ED1 | Same as -P1A5 but with IO-540-K series rotating system. |
| | -T4C5D | 424 | PAC RSA-5AD1 | Same as -T4B5D except equipped with TCM retard breaker dual magneto and has a maximum oil capacity of 10 quarts. |
| | -T4A5D | 381 | PAC RSA-5AD1 | Same as -D4B5 except has horizontal rear inlet fuel injector and equipped with a D6LN-2031 dual magneto. |
| | -T4B5D | 381 | PAC RSA-5AD1 | Same as -T4A5D except for fuel drain boss location. |
| | -T4D5 | 418 | PAC RSA-5AD1 | Similar to -T4B5D except is equipped with two Slick magnetos in place of the TCM dual magneto. |
| | -U1A5D | 423 | PAC RSA-10ED1 | Same as -L1A5 except has top-side exhaust port cylinder heads and equipped with a D6LN-2031 dual magneto. |
| | -U1B5D | 422 | PAC RSA-10ED1 | Same as -J1A5D except equipped with a diaphragm type fuel pump and drive. |
| | -V4A5D | 414 | PAC RSA-5AD1 | Similar to -T4B5D except equipped with a front mounted fuel injector instead of a rear inlet fuel injector. |
| | -V4A5 | 420 | PAC RSA-5AD1 | Similar to -V4A5D except is equipped with two Slick magnetos in place of the TCM dual magneto. |
| | -W1A5D | 400 | PAC RSA-5AD1 | Similar to O-540-J1A5D (TC-E295) except equipped with oil sump, intake pipes, and fuel injection system from the -V4A5D. |
| | -W1A5 | 400 | PAC RSA-5AD1 | Similar to -W1A5D except is equipped with two Slick magnetos in place of the TCM dual magneto. |
| | -W3A5D | 401 | PAC RSA-5AD1 | Same as -W1A5D except has heavier crankshaft counterweights. |
| HIO- | 540-A1A | 443 | PAC RSA-10ED | Same as IO-540-K1A5 except to be used in helicopter application. |
| AEIO- | 540-D4A5 | 384 | PAC RSA-5AD1 | Same as IO-540-D4A5 except equipped with an inverted oil system kit for aerobatic flight. |
| | -D4B5 | 386 | PAC RSA-5AD1 | Same as IO-540-D4B5 except equipped with an inverted oil system kit for aerobatic flight. |
| | -D4C5 | 385 | PAC RSA-5AD1 | Same as IO-540-D4C5 except equipped with an inverted oil system kit for aerobatic flight. |
| | -D4D5 | 386 | PAC RSA-5AD1 | Same as AEIO-540-D4A5 except AN type fuel pump |
| | -L1B5D | 476 | PAC RSA-10AD1 or RSA-10DB1 (Opt.) | Similar to IO-540-L1A5D except equipped with an inverted oil system and modified oil sump for aerobatic flight. |
| | -L1B5 | 480 | PAC RSA-10AD1 or RSA-10DB1 (Opt.) | Same as AEIO-540 -L1B5D except is equipped with two Slick magnetos in place of the TCM dual magneto. |
| | -L1D5 | 480 | PAC RSA-10AD1 or RSA-10DB1 (Opt.) | Same as AEIO-540-L1B5 except has larger capacity oil pump. |

* Precision Airmotive Corp. (PAC) formally Bendix

NOTE 6. Accessories and Equipment:

Starter, generators and alternators approved for use on these engines are listed in the latest revisions of Textron Lycoming Service Instruction No. 1154.

NOTE 7. These engines incorporate crankshafts with one fifth order and one sixth order dampers unless the number "5" is omitted in the fourth position of the model designation, i.e. -C2C which has two sixth order dampers. These engines also have variations in crankshafts and counterweights; therefore, for approved engine and propeller combinations refer to the specific propeller and aircraft TC data sheets.

NOTE 8. Engine models IO-540-J4A5 and -R1A5 are eligible for turbocharging and under these conditions, the following additional limits apply: intake air manifold pressure max. 29.0 in. Hg. absolute exhaust back pressure max. 32 in. Hg. absolute at inlet to turbocharger for -J4A5; (33.5 in. Hg. for -R1A5); air inlet temperature to injector max. 400 degrees F. Engine model IO-540-AA1A5 is eligible for turbo charging when equipped in accordance with Piper Aircraft Corporation installation Drawing No. 300076 and under these conditions the following additional modified limits apply: intake air manifold pressure max. 37.0 in. Hg. absolute at 2425 r.p.m.; exhaust back pressure max. 43 in. Hg. absolute at intake to turbocharger; air inlet temperature to injector max. 400 degrees F; and fuel pressure limits to the injector are 21 to 40 p.s.i.

NOTE 9. For all models - ignition and center of gravity:

| Models | | Ignition, dual* + TCM S6LN-200, S6LN-204 | C.G. location (dry with starter and generator installed) | | |
|--------|--|--|--|--|--|
| | | | From front face of propeller mounting flange (in.) | Off prop. shaft C.L. (in.) Vertical | Lateral |
| IO-540 | -A1A5, -B1B5, -B1A5,-B1C5 -C1B5; -C1C5, -C4B5, -C4C5 -C2C, C4D5 -C4D5D -D4A5 -D4B5 -D4C5 -E1A5 -E1B5, -E1C5 -G1A5 -G1B5 -G1C5, -G1D5 -G1E5 -G1F5 -J4A5 -K1A5, -K1B5, -K1K5, -K2A5 -K1A5D -K1B5D -K1C5, -K1D5 -K1E5 -T4C5D -K1E5D, -L1A5D -K1F5, -AA1A5 -K1F5D -K1G5, -K1H5 -K1G5D -M1B5D -K1J5 -K1J5D -L1A5, -L1C5 | TCM S6LN-200, S6LN-204 or Slick 675, 674 TCM S6LN-21, S6LN-20 TCM D6LN-2031 TCM S6LN-200, S6LN-204 TCM S6LN-1227, S6LN-1209 TCM S6LN-1208, S6LN-1209 TCM S6LN-200, S6LN-204 TCM S6LN-1208, S6LN-1209 TCM S6LN-1208, S6LN-1209 TCM S6LN-200, S6LN-204 TCM S6LN-1208, S6LN-1209 TCM S6LN-1227, S6LN-1209 TCM S6LN-1208, S6LN-1209 TCM S6LN-1227, S6LN-1227 or S6LN-1209 TCM S6LN-1208, S6LN-1209 TCM S6LN-1227, S6LN-1227 or S6LN-1209 TCM D6LN-2031 TCM D6LN-2031 TCM S6LN-200, S6LN-204 TCM S6LN-1227, S6LN-1209 or S6LN-1227 TCM D6LN-3200 TCM D6LN-2031 TCM S6LN-1208, S6LN-1209 TCM D6LN-2230 TCM S6LN-1227, S6LN-1209 or S6LN-1227 TCM D6LN-2031 TCM D6LN-2031 TCM S6LN-1208, S6LN-1209 TCM D6LN-2230 TCM S6LN-1227, S6LN-1209 | 18.34 18.16 18.16 18.16 18.16 18.16 18.34 18.34 18.34 18.44 18.34 18.34 18.16 18.25 18.25 18.25 18.25 18.36 18.25 18.25 18.25 18.25 18.25 18.25 13.29 18.25 18.25 17.91 | 1.41 below 1.15 below 1.15 below 1.15 below 1.15 below 1.15 below 1.15 below 1.41 below 1.41 below 0.98 below 0.98 below 1.41 below 1.41 below 1.41 below 1.15 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below 0.88 below | 0.18 left 0.21 left 0.21 left 0.21 left 0.21 left 0.21 left 0.21 left 0.21 left 0.18 left 0.18 left 0.03 left 0.03 left 0.18 left 0.21 left 0.16 right 0.16 right 0.16 right 0.16 right 0.16 right 0.16 right 0.16 right 0.16 right 0.16 right 0.17 right 0.16 right 0.16 right 0.16 right |

*For alternate magnetos see latest Textron Lycoming Service Instruction (S.I.) 1443.

+ TCM formally Bendix

NOTE 9. For all models - ignition and center of gravity: (cont'd)

| | | | C.G. location (dry with starter and generator installed) | | |
|--------------------|---------------|---|--|--|------------|
| | | | From front face of propeller mounting flange (in.) | Off prop. shaft C.L. (in.) Vertical | Lateral |
| Models IO-540 | -M1A5 | Ignition, dual* + TCM S6LN-1208, S6LN-1209 | 18.29 | 0.89 below | 0.17 right |
| | -M2A5D,-M1A5D | TCM D6LN-2230 | 18.29 | 0.89 below | 0.17 right |
| | -N1A5 | TCM S6LN-200, S6LN-204 | 17.76 | 1.10 below | 0.12 left |
| | -P1A5 | TCM S6LN-1208, S6LN-1209 | 18.44 | 0.98 below | 0.03 left |
| | -R1A5 | TCM S6LN-1208, S6LN-1209 | 17.76 | 1.10 below | 0.12 left |
| | -S1A5 | TCM S6LN-1208, S6LN-1209 | 18.25 | 0.88 below | 0.16 right |
| | -T4A5D,-T4B5D | TCM D6LN-2031 | 18.36 | 1.08 below | 0.17 left |
| | -T4B5 | Slick 6251, 6250 or 6251 | 18.36 | 1.08 below | 0.17 left |
| | -U1A5D,-U1B5D | TCM D6LN-2031 | 17.91 | 0.88 below | 0.16 right |
| | -V4A5D | TCM D6LN-2031 | 17.25 | 0.50 below | 0.25 left |
| | -V4A5 | Slick 6351, 6350 | 17.25 | 0.50 below | 0.25 left |
| | -W1A5D,-W3A5D | TCM D6LN-3000 | 17.60 | 0.77 below | 0.20 left |
| | -W1A5 | Slick 6361, 6350 | 17.60 | 0.77 below | 0.20 left |
| | -AB1A5 | Slick 6351 (2) | 17.60 (#) | 0.77 below | 0.20 left |
| | -AA1B5 | Slick 6360, 6361 | 18.25 | 0.88 below | 0.16 right |
| | -AC1A5 | Slick 6351 (2) | 18.03 (#) | 0.13 above | 0.11 left |
| HIO-540 | -A1A | TCM S6LN-1227, S6LN-1209 or S6LN-1227 | 18.25 | 0.88 below | 0.16 right |
| AEIO-540 | -D4A5 | TCM S6LN-200, S6LN-204 | 18.16 | 1.15 below | 0.21 left |
| | -D4B5 | TCM S6LN-1227, S6LN-1209 | 18.16 | 1.15 below | 0.21 left |
| | -D4C5 | TCM S6LN-1208, S6LN-1209 | 18.16 | 1.15 below | 0.21 left |
| | -D4D5 | Slick 6393, 6350 | 18.16 | 1.15 below | 0.21 left |
| AEIO & IO- 540- | -L1B5D | TCM D6LN-3000 | 17.19 | 0.77 below | 0.16 right |
| AEIO-540 | -L1B5 | Slick 6351 (2), 6350 or 6351 | 17.19 | 0.77 below | 0.16 right |
| | -L1D5 | Slick 6351 (2), 6350 or 6351 | 17.19 | 0.77 below | 0.16 right |

*For alternate magnetos see latest Textron Lycoming Service Instruction (S.I.) 1443.

+ TCM formally Bendix

(#) No Alternator installed

NOTE 10. These engines incorporate provisions for absorbing propeller thrust in both tractor and pusher type installations.

NOTE 11. Refer to latest Lycoming Service Bulletin (S.B.) No. 369 for applicable inspection procedures of engines which have been operated above the specified max. continuous r.p.m. rating (except momentary overspeed as defined in S.B.).

...END...